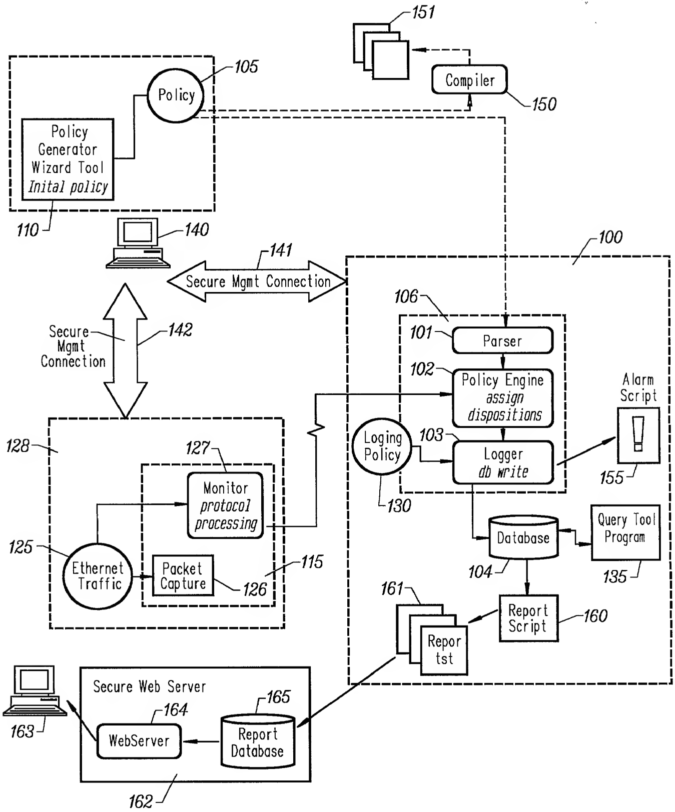

151
Compiler
150
105
Policy
Policy Generator Wizard Tool
Inital policy
110
140
141
Secure Mgmt Connection
100
106
Secure Mgmt Connection
142
101
Parser
102
Policy Engine
assign dispositions
Alarm Script
Loging Policy
103
Logger
db write
155
130
128
127
Monitor
protocol processing
Database
Query Tool Program
125
Ethernet Traffic
Packet Capture
126
115
104
135
161
Report Script
160
Repor tst
Secure Web Server
165
164
WebServer
Report Database
163
162

FIG. 1A

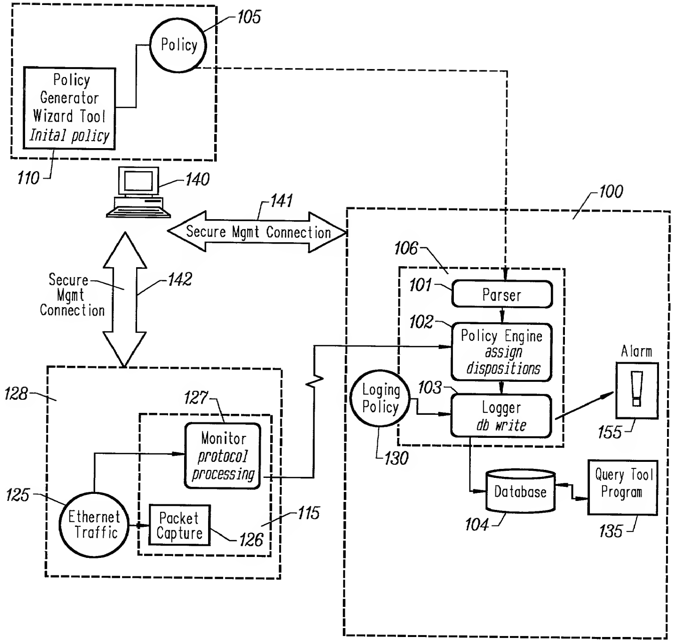

Policy
105
Policy
Generator
Wizard Tool
Inital policy
110
140
141
Secure Mgmt Connection
100
106
Secure
Mgmt
Connection
142
101
Parser
102
Policy Engine
assign
dispositions
Alarm
Loging
Policy
103
Logger
db write
155
128
127
Monitor
protocol
processing
130
125
Ethernet
Traffic
Packet
Capture
115
126
Database
Query Tool
Program
104
135

FIG. 1B

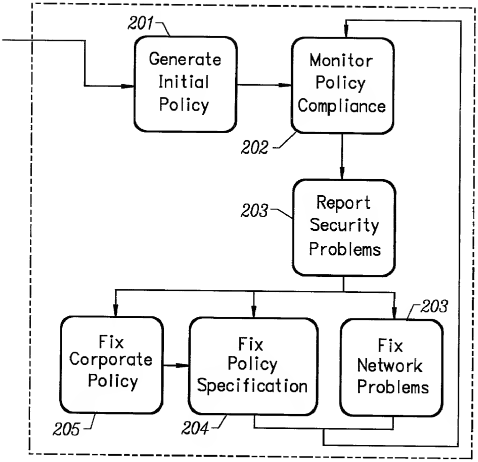
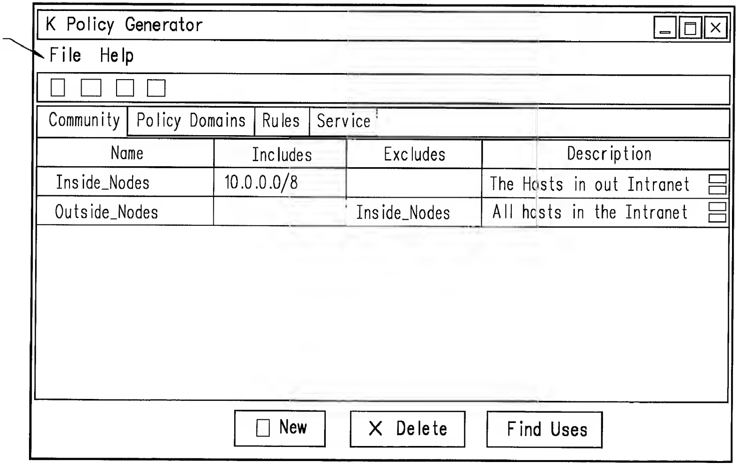
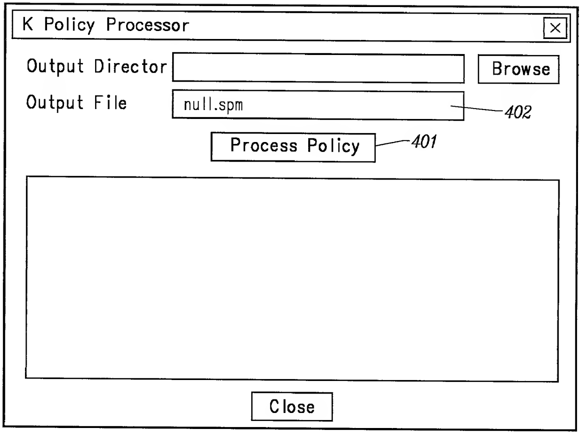

201
Generate Initial Policy
Monitor Policy Compliance
202
203
Report Security Problems
203
Fix Corporate Policy
Fix Policy Specification
Fix Network Problems
205
204

FIG. 2



Name	Includes	Excludes	Description
Inside_Nodes	10.0.0.0/8		The Hosts in out Intranet
Outside_Nodes		Inside_Nodes	All hosts in the Intranet

FIG. 3

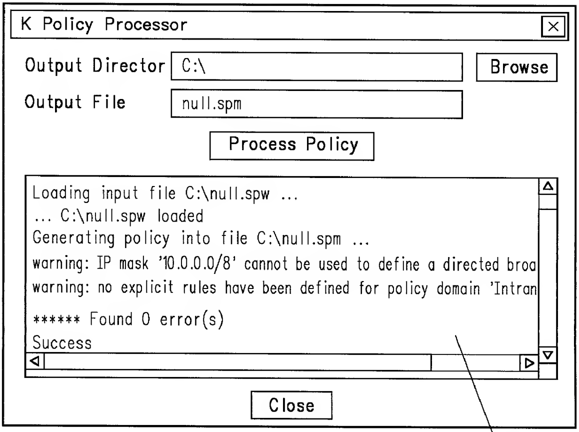


K Policy Processor

Output Director

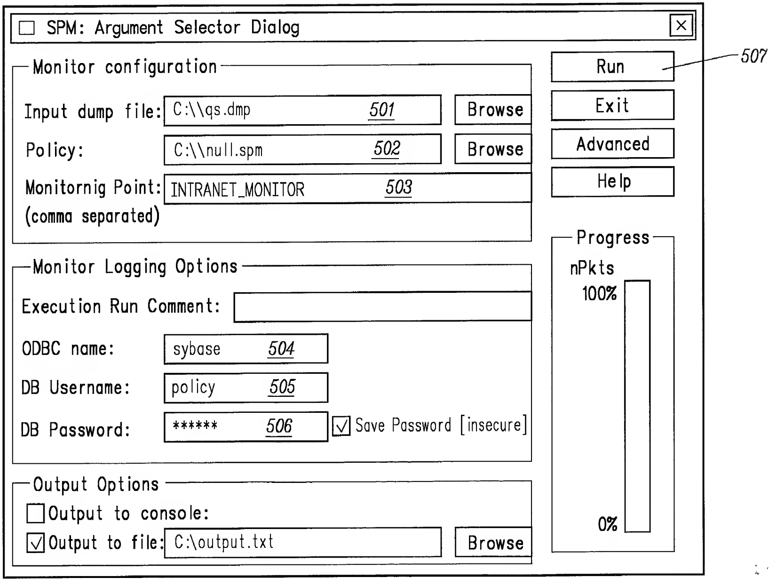
Output File null.spm

FIG. 4A



```
Loading input file C:\null.spw ...
... C:\null.spw loaded
Generating policy into file C:\null.spm ...
warning: IP mask '10.0.0.0/8' cannot be used to define a directed broa
warning: no explicit rules have been defined for policy domain 'Intran
****** Found 0 error(s)
Success
```

FIG. 4B



□ SPM: Argument Selector Dialog

Monitor configuration

Input dump file: C:\\qs.dmp

Policy: C:\\null.spm

Monitornig Point: (comma separated) INTRANET_MONITOR

Monitor Logging Options

Execution Run Comment:

ODBC name: sybase

DB Username: policy

DB Password: ******

☑ Save Password [insecure]

Output Options

□ Output to console:

☑ Output to file: C:\output.txt

Progress

nPkts

100%

0%

FIG. 5

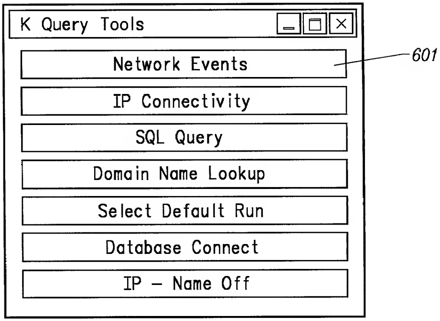
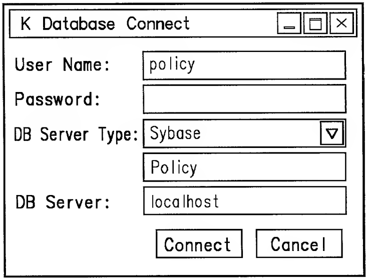


FIG. 6



User Name: policy

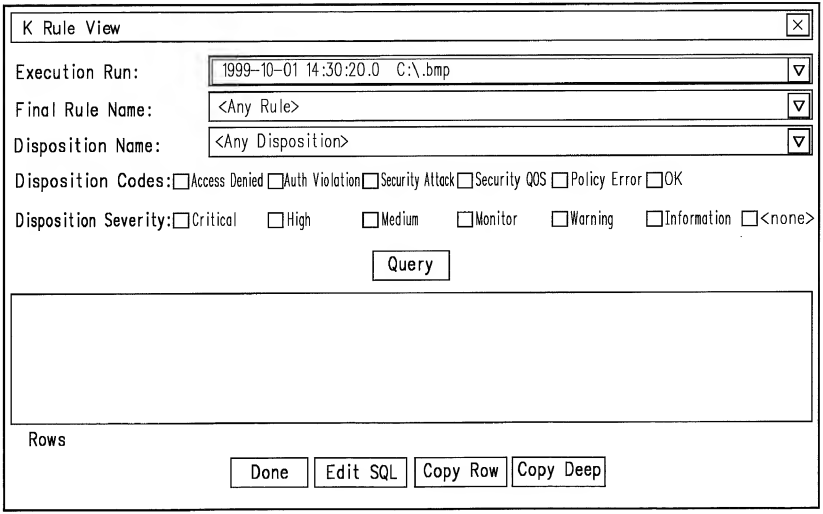
Password:

DB Server Type: Sybase

Policy

DB Server: localhost

FIG. 7



K Rule View

Execution Run: 1999-10-01 14:30:20.0 C:\.bmp

Final Rule Name: <Any Rule>

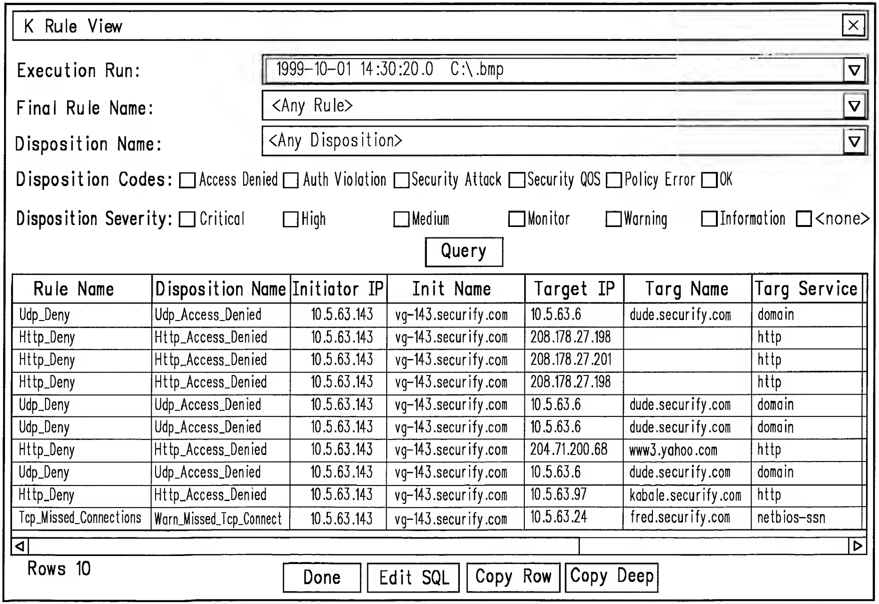
Disposition Name: <Any Disposition>

Disposition Codes: □Access Denied □Auth Violation □Security Attack □Security QOS □Policy Error □OK

Disposition Severity: □Critical □High □Medium □Monitor □Warning □Information □<none>

Rows

FIG. 8



Execution Run: 1999-10-01 14:30:20.0 C:\.bmp ▽

Final Rule Name: <Any Rule> ▽

Disposition Name: <Any Disposition> ▽

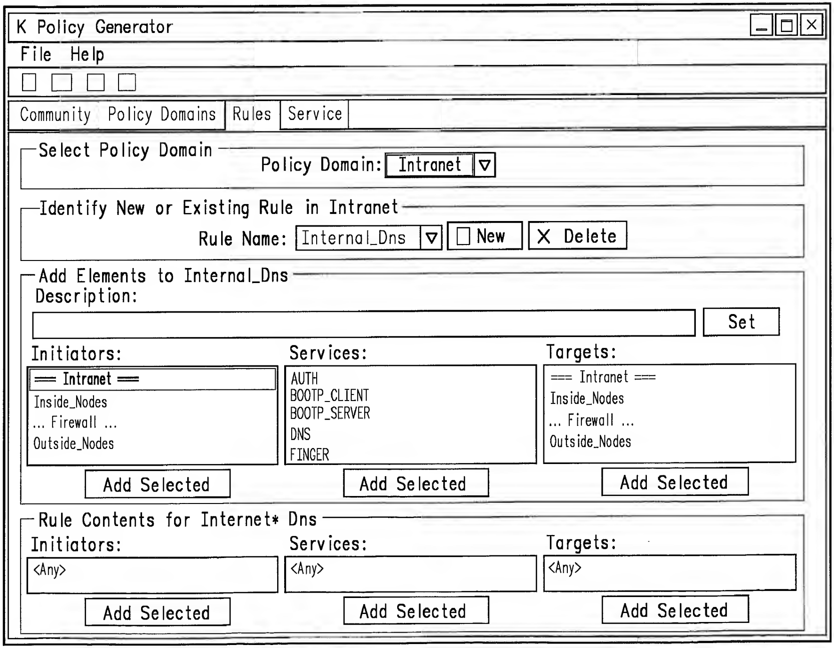
Disposition Codes: □ Access Denied □ Auth Violation □ Security Attack □ Security QOS □ Policy Error □ OK

Disposition Severity: □ Critical □ High □ Medium □ Monitor □ Warning □ Information □ <none>

Rule Name	Disposition Name	Initiator IP	Init Name	Target IP	Targ Name	Targ Service
Udp_Deny	Udp_Access_Denied	10.5.63.143	vg-143.securify.com	10.5.63.6	dude.securify.com	domain
Http_Deny	Http_Access_Denied	10.5.63.143	vg-143.securify.com	208.178.27.198		http
Http_Deny	Http_Access_Denied	10.5.63.143	vg-143.securify.com	208.178.27.201		http
Http_Deny	Http_Access_Denied	10.5.63.143	vg-143.securify.com	208.178.27.198		http
Udp_Deny	Udp_Access_Denied	10.5.63.143	vg-143.securify.com	10.5.63.6	dude.securify.com	domain
Udp_Deny	Udp_Access_Denied	10.5.63.143	vg-143.securify.com	10.5.63.6	dude.securify.com	domain
Http_Deny	Http_Access_Denied	10.5.63.143	vg-143.securify.com	204.71.200.68	www3.yahoo.com	http
Udp_Deny	Udp_Access_Denied	10.5.63.143	vg-143.securify.com	10.5.63.6	dude.securify.com	domain
Http_Deny	Http_Access_Denied	10.5.63.143	vg-143.securify.com	10.5.63.97	kabale.securify.com	http
Tcp_Missed_Connections	Warn_Missed_Tcp_Connect	10.5.63.143	vg-143.securify.com	10.5.63.24	fred.securify.com	netbios-ssn

Rows 10

FIG. 9



K Policy Generator

Policy Domain: Intranet

Rule Name: Internal_Dns

Description:

Initiators:
== Intranet ==
Inside_Nodes
... Firewall ...
Outside_Nodes

Services:
AUTH
BOOTP_CLIENT
BOOTP_SERVER
DNS
FINGER

Targets:
=== Intranet ===
Inside_Nodes
... Firewall ...
Outside_Nodes

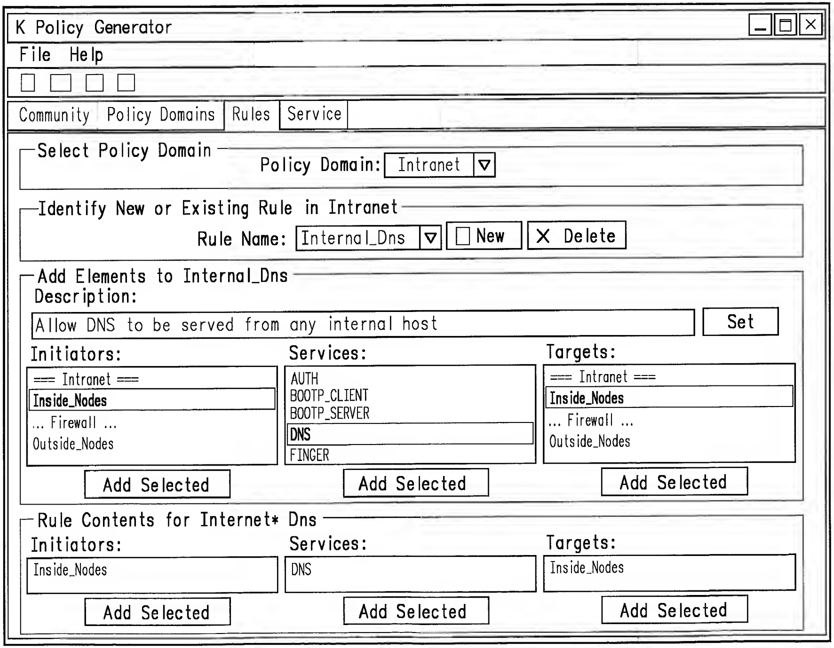
Rule Contents for Internet* Dns

Initiators: <Any>

Services: <Any>

Targets: <Any>

FIG. 10A



Select Policy Domain

Policy Domain: Intranet ▽

Identify New or Existing Rule in Intranet

Rule Name: Internal_Dns ▽

Add Elements to Internal_Dns

Description:

Allow DNS to be served from any internal host

Initiators:

=== Intranet ===
Inside_Nodes
... Firewall ...
Outside_Nodes

Services:

AUTH
BOOTP_CLIENT
BOOTP_SERVER
DNS
FINGER

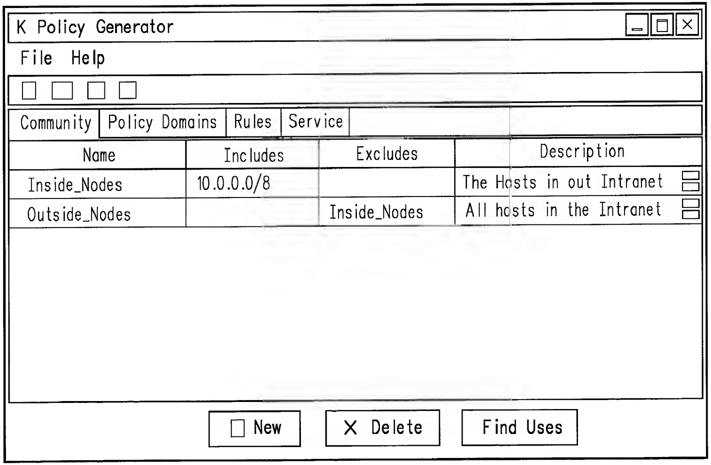
Targets:

=== Intranet ===
Inside_Nodes
... Firewall ...
Outside_Nodes

Rule Contents for Internet* Dns

Initiators:	Services:	Targets:
Inside_Nodes	DNS	Inside_Nodes

FIG. 10B



Name	Includes	Excludes	Description
Inside_Nodes	10.0.0.0/8		The Hosts in out Intranet
Outside_Nodes		Inside_Nodes	All hosts in the Intranet

FIG. 10C

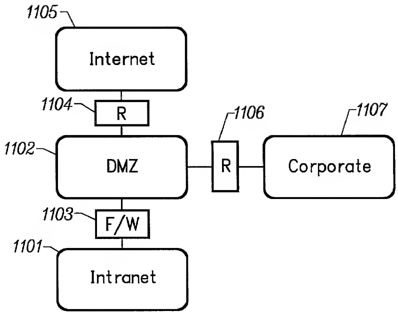

1105
Internet
1104
R
1106
1107
1102
DMZ
R
Corporate
1103
F/W
1101
Intranet

FIG. 11

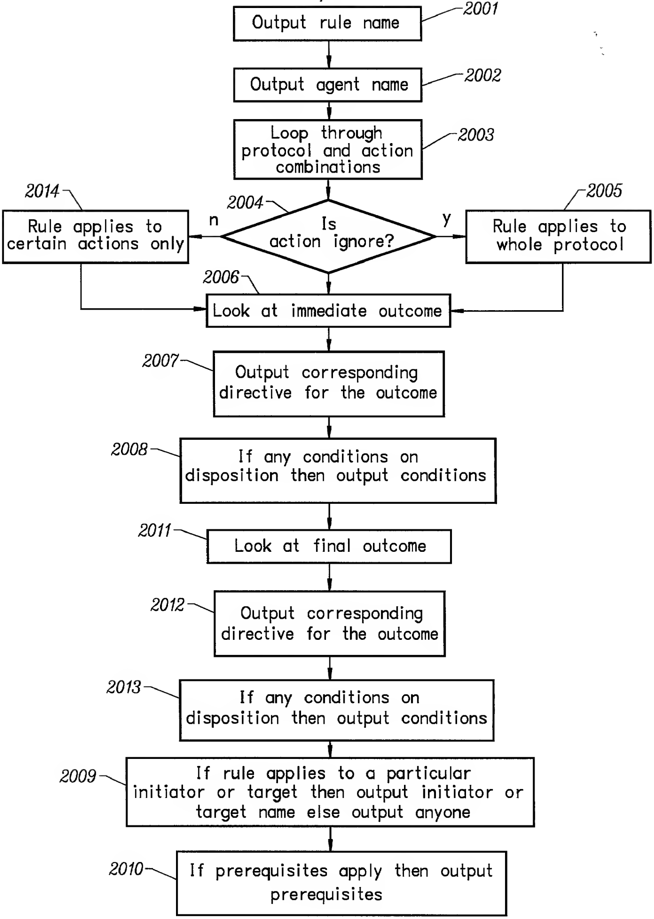
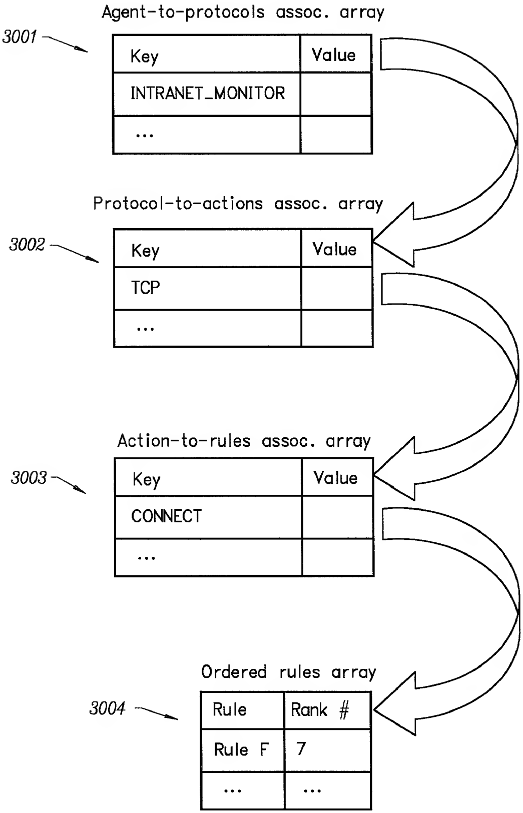

Output rule name
2001
Output agent name
2002
Loop through protocol and action combinations
2003
2014
2004
2005
Rule applies to certain actions only
n
Is action ignore?
y
Rule applies to whole protocol
2006
Look at immediate outcome
2007
Output corresponding directive for the outcome
2008
If any conditions on disposition then output conditions
2011
Look at final outcome
2012
Output corresponding directive for the outcome
2013
If any conditions on disposition then output conditions
2009
If rule applies to a particular initiator or target then output initiator or target name else output anyone
2010
If prerequisites apply then output prerequisites

FIG. 12



Agent-to-protocols assoc. array

Key	Value
INTRANET_MONITOR	
...	

Protocol-to-actions assoc. array

Key	Value
TCP	
...	

Action-to-rules assoc. array

Key	Value
CONNECT	
...	

Ordered rules array

Rule	Rank #
Rule F	7
...	...

FIG. 13

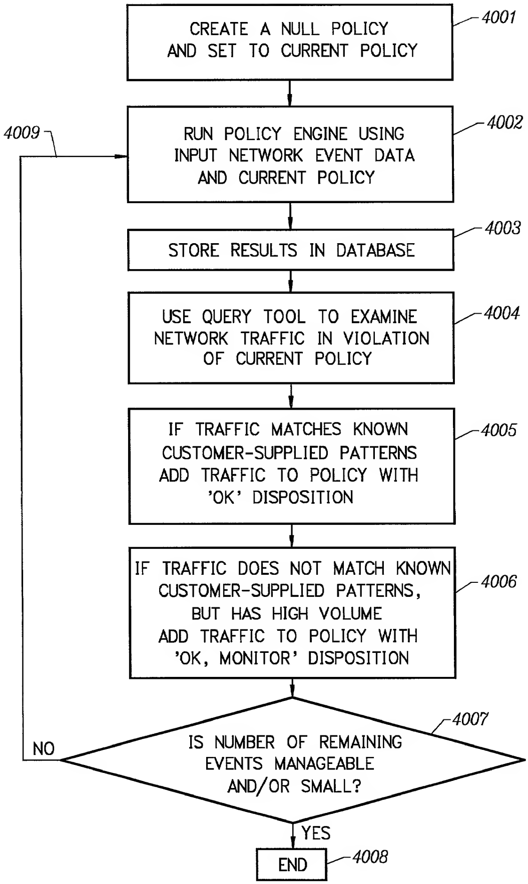
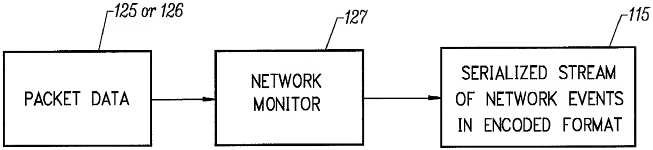
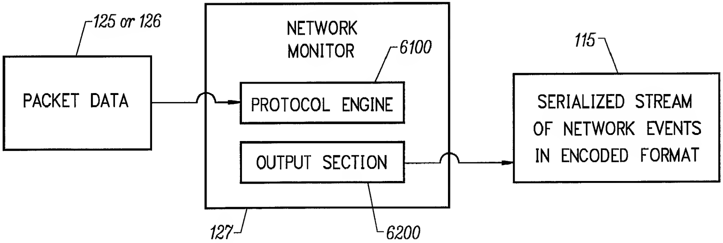

CREATE A NULL POLICY AND SET TO CURRENT POLICY
4001
RUN POLICY ENGINE USING INPUT NETWORK EVENT DATA AND CURRENT POLICY
4002
4009
STORE RESULTS IN DATABASE
4003
USE QUERY TOOL TO EXAMINE NETWORK TRAFFIC IN VIOLATION OF CURRENT POLICY
4004
IF TRAFFIC MATCHES KNOWN CUSTOMER-SUPPLIED PATTERNS ADD TRAFFIC TO POLICY WITH 'OK' DISPOSITION
4005
IF TRAFFIC DOES NOT MATCH KNOWN CUSTOMER-SUPPLIED PATTERNS, BUT HAS HIGH VOLUME ADD TRAFFIC TO POLICY WITH 'OK, MONITOR' DISPOSITION
4006
IS NUMBER OF REMAINING EVENTS MANAGEABLE AND/OR SMALL?
4007
NO
YES
END
4008

FIG. 14



125 or 126
PACKET DATA
127
NETWORK MONITOR
115
SERIALIZED STREAM OF NETWORK EVENTS IN ENCODED FORMAT

FIG. 15



125 or 126
PACKET DATA
NETWORK MONITOR
6100
PROTOCOL ENGINE
OUTPUT SECTION
127
6200
115
SERIALIZED STREAM OF NETWORK EVENTS IN ENCODED FORMAT

FIG. 16

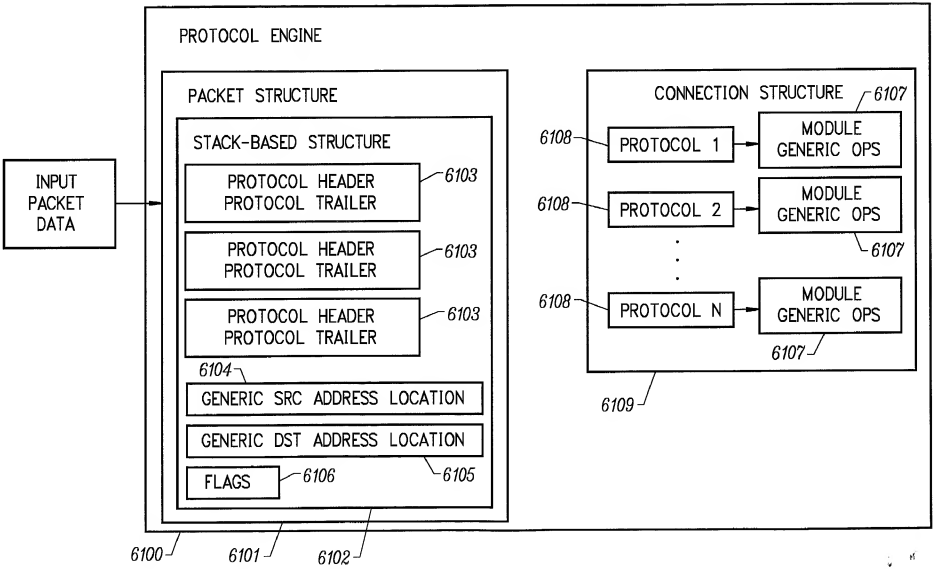

INPUT PACKET DATA
PROTOCOL ENGINE
PACKET STRUCTURE
STACK-BASED STRUCTURE
PROTOCOL HEADER
PROTOCOL TRAILER
6103
PROTOCOL HEADER
PROTOCOL TRAILER
6103
PROTOCOL HEADER
PROTOCOL TRAILER
6103
6104
GENERIC SRC ADDRESS LOCATION
GENERIC DST ADDRESS LOCATION
FLAGS
6106
6105
6100
6101
6102
CONNECTION STRUCTURE
6107
6108
PROTOCOL 1
MODULE GENERIC OPS
6108
PROTOCOL 2
MODULE GENERIC OPS
6107
6108
PROTOCOL N
MODULE GENERIC OPS
6107
6109

FIG. 17

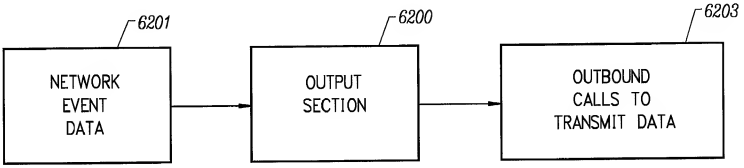

6201
NETWORK EVENT DATA
6200
OUTPUT SECTION
6203
OUTBOUND CALLS TO TRANSMIT DATA

FIG. 18

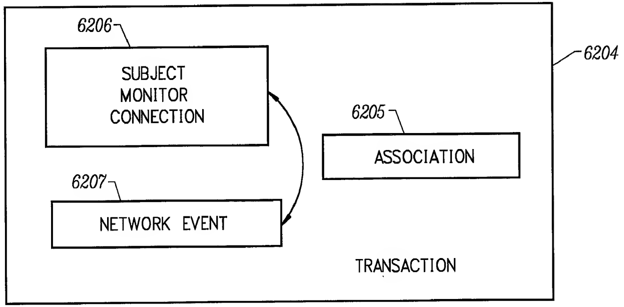
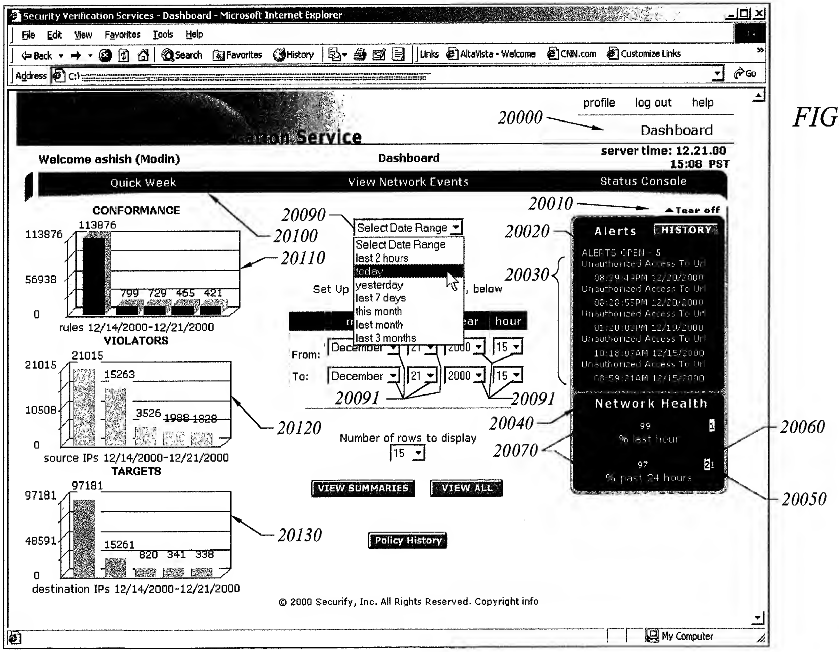

6206
SUBJECT MONITOR CONNECTION
6207
NETWORK EVENT
6205
ASSOCIATION
TRANSACTION
6204

FIG. 19



ALERTS OPEN - 5
Unauthorized Access To Url
08:29:49PM 12/20/2000
Unauthorized Access To Url
08:28:55PM 12/20/2000
Unauthorized Access To Url
01:20:03PM 12/19/2000
Unauthorized Access To Url
10:18:07AM 12/15/2000
Unauthorized Access To Url
08:59:21AM 12/15/2000

99 % last hour 1

97 % past 24 hours 21

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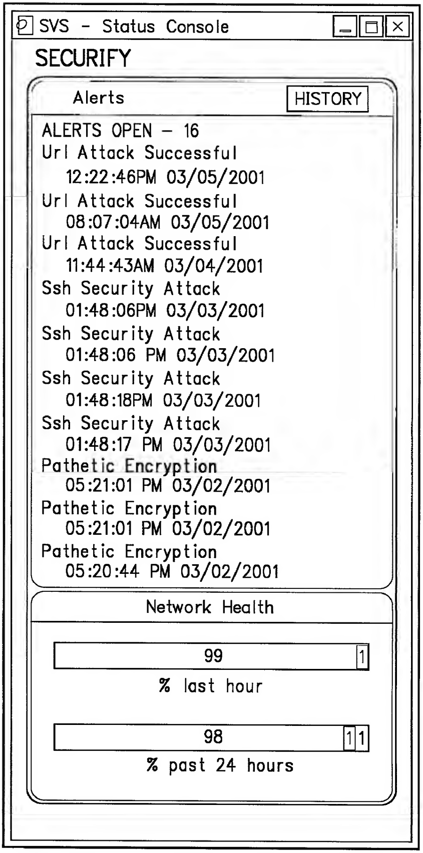
FIG. 20



SVS - Status Console

SECURIFY

Alerts

HISTORY

```
ALERTS OPEN - 16
Url Attack Successful
   12:22:46PM 03/05/2001
Url Attack Successful
   08:07:04AM 03/05/2001
Url Attack Successful
   11:44:43AM 03/04/2001
Ssh Security Attack
   01:48:06PM 03/03/2001
Ssh Security Attack
   01:48:06 PM 03/03/2001
Ssh Security Attack
   01:48:18PM 03/03/2001
Ssh Security Attack
   01:48:17 PM 03/03/2001
Pathetic Encryption
   05:21:01 PM 03/02/2001
Pathetic Encryption
   05:21:01 PM 03/02/2001
Pathetic Encryption
   05:20:44 PM 03/02/2001
```

Network Health

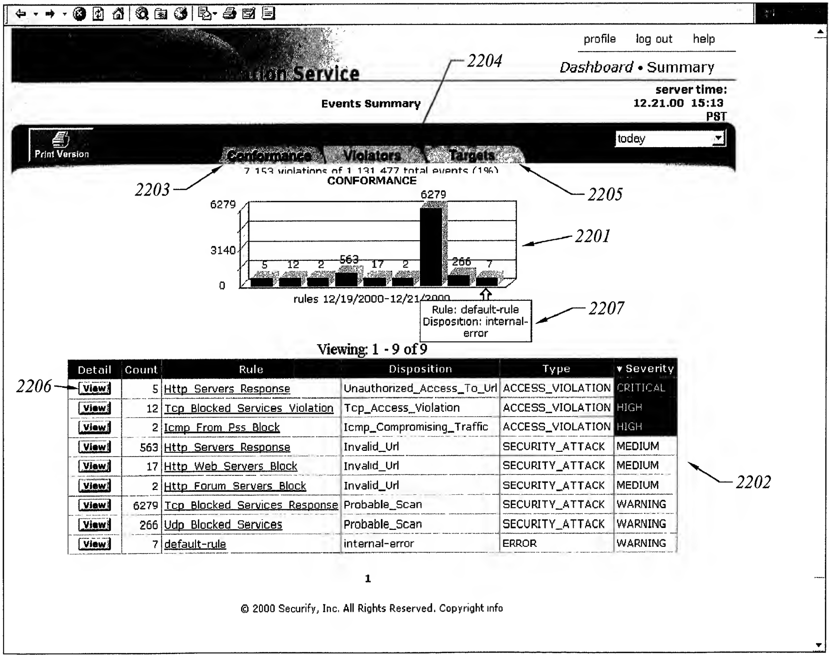
99 | 1

% last hour

98 | 1 | 1

% past 24 hours

FIG. 21



7 153 violations of 1 131 477 total events (1%)

CONFORMANCE

rules 12/19/2000-12/21/2000

Rule: default-rule
Disposition: internal-error

Viewing: 1 - 9 of 9

Detail	Count	Rule	Disposition	Type	▾ Severity
View	5	Http_Servers_Response	Unauthorized_Access_To_Url	ACCESS_VIOLATION	CRITICAL
View	12	Tcp_Blocked_Services_Violation	Tcp_Access_Violation	ACCESS_VIOLATION	HIGH
View	2	Icmp_From_Pss_Block	Icmp_Compromising_Traffic	ACCESS_VIOLATION	HIGH
View	563	Http_Servers_Response	Invalid_Url	SECURITY_ATTACK	MEDIUM
View	17	Http_Web_Servers_Block	Invalid_Url	SECURITY_ATTACK	MEDIUM
View	2	Http_Forum_Servers_Block	Invalid_Url	SECURITY_ATTACK	MEDIUM
View	6279	Tcp_Blocked_Services_Response	Probable_Scan	SECURITY_ATTACK	WARNING
View	266	Udp_Blocked_Services	Probable_Scan	SECURITY_ATTACK	WARNING
View	7	default-rule	internal-error	ERROR	WARNING

1

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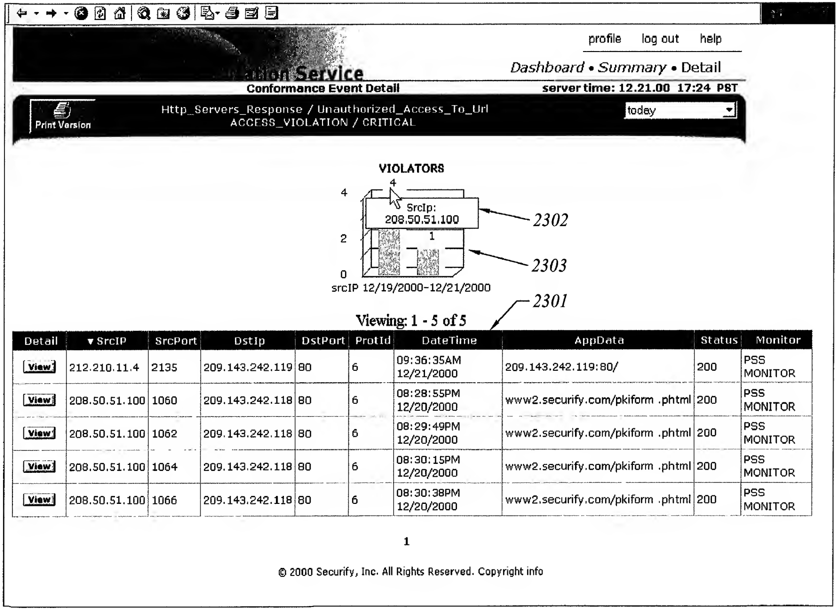
FIG. 22



Conformance Event Detail

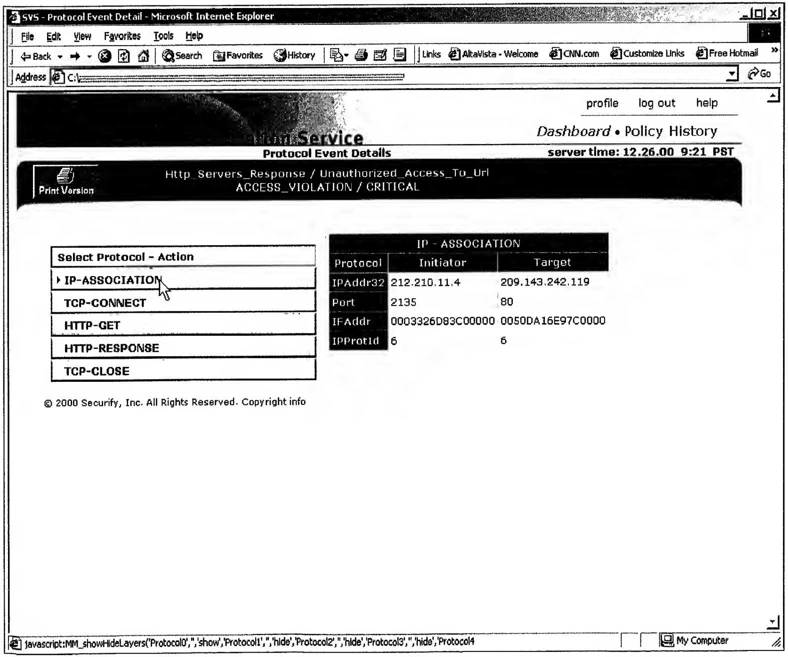
server time: 12.21.00 17:24 PST

Http_Servers_Response / Unauthorized_Access_To_Url
ACCESS_VIOLATION / CRITICAL

Viewing: 1 - 5 of 5

Detail	▼SrcIP	SrcPort	DstIp	DstPort	ProtId	DateTime	AppData	Status	Monitor
View	212.210.11.4	2135	209.143.242.119	80	6	09:36:35AM 12/21/2000	209.143.242.119:80/	200	PSS MONITOR
View	208.50.51.100	1060	209.143.242.118	80	6	08:28:55PM 12/20/2000	www2.securify.com/pkiform .phtml	200	PSS MONITOR
View	208.50.51.100	1062	209.143.242.118	80	6	08:29:49PM 12/20/2000	www2.securify.com/pkiform .phtml	200	PSS MONITOR
View	208.50.51.100	1064	209.143.242.118	80	6	08:30:15PM 12/20/2000	www2.securify.com/pkiform .phtml	200	PSS MONITOR
View	208.50.51.100	1066	209.143.242.118	80	6	08:30:38PM 12/20/2000	www2.securify.com/pkiform .phtml	200	PSS MONITOR

FIG. 23



SVS - Protocol Event Detail - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History Links AltaVista - Welcome CNN.com Customize Links Free Hotmail
Address C:\
Go
profile log out help
Dashboard • Policy History
Service
Print Version
My Computer

Protocol Event Details

server time: 12.26.00 9:21 PST

Http_Servers_Response / Unauthorized_Access_To_Url
ACCESS_VIOLATION / CRITICAL

Select Protocol - Action
IP-ASSOCIATION
TCP-CONNECT
HTTP-GET
HTTP-RESPONSE
TCP-CLOSE

IP - ASSOCIATION		
Protocol	Initiator	Target
IPAddr32	212.210.11.4	209.143.242.119
Port	2135	80
IFAddr	0003326D83C00000	0050DA16E97C0000
IPProtId	6	6

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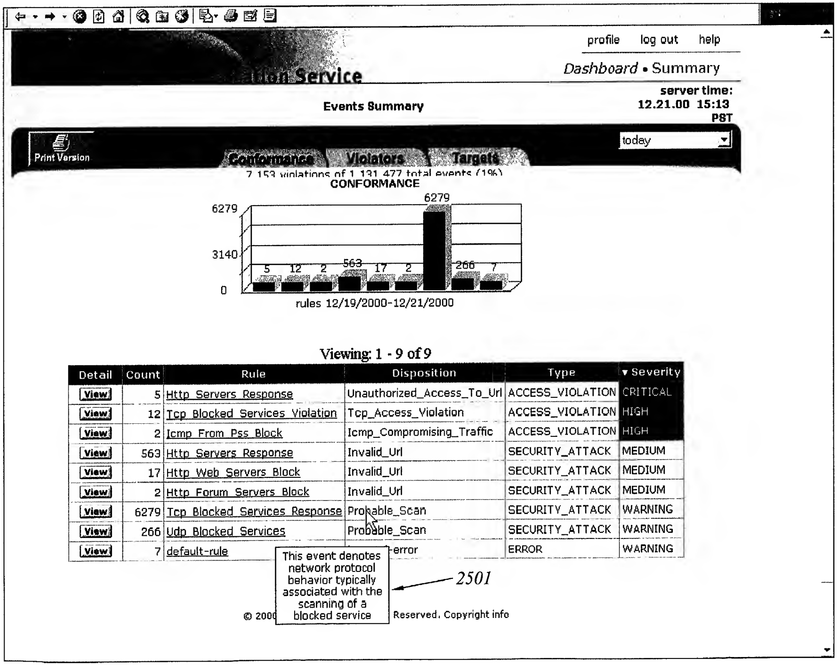
javascript:MM_showHideLayers('Protocol0','','show','Protocol1','','hide','Protocol2','','hide','Protocol3','','hide','Protocol4

FIG. 24



Dashboard • Summary

server time:
12.21.00 15:13
PST

Events Summary

7 153 violations of 1 131 477 total events (1%)

CONFORMANCE

rules 12/19/2000-12/21/2000

Viewing: 1 - 9 of 9

Detail	Count	Rule	Disposition	Type	▾ Severity
View	5	Http_Servers_Response	Unauthorized_Access_To_Url	ACCESS_VIOLATION	CRITICAL
View	12	Tcp_Blocked_Services_Violation	Tcp_Access_Violation	ACCESS_VIOLATION	HIGH
View	2	Icmp_From_Pss_Block	Icmp_Compromising_Traffic	ACCESS_VIOLATION	HIGH
View	563	Http_Servers_Response	Invalid_Url	SECURITY_ATTACK	MEDIUM
View	17	Http_Web_Servers_Block	Invalid_Url	SECURITY_ATTACK	MEDIUM
View	2	Http_Forum_Servers_Block	Invalid_Url	SECURITY_ATTACK	MEDIUM
View	6279	Tcp_Blocked_Services_Response	Probable_Scan	SECURITY_ATTACK	WARNING
View	266	Udp_Blocked_Services	Probable_Scan	SECURITY_ATTACK	WARNING
View	7	default-rule	error	ERROR	WARNING

This event denotes network protocol behavior typically associated with the scanning of a blocked service

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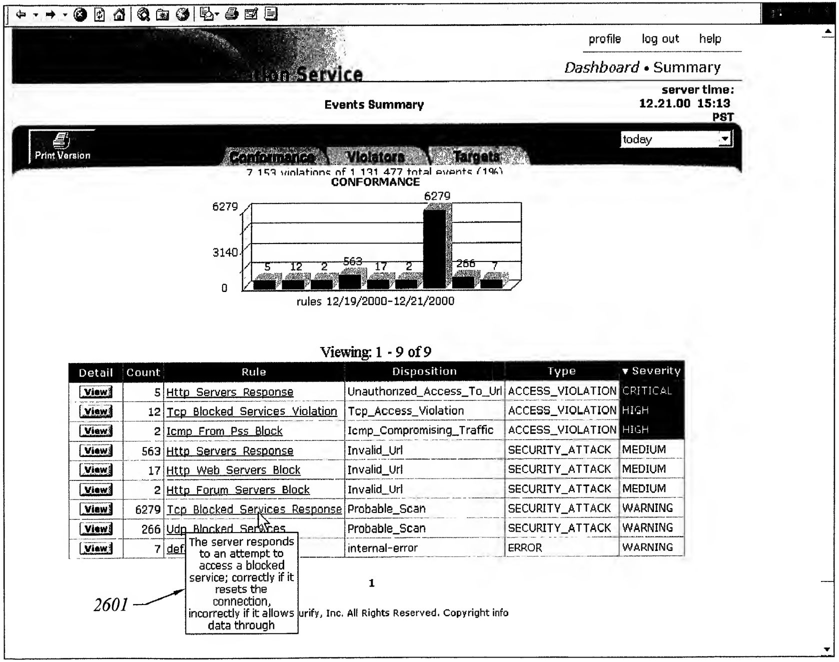
FIG. 25



Events Summary

server time:
12.21.00 15:13
PST

7 153 violations of 1 131 477 total events (1%)

Viewing: 1 - 9 of 9

Detail	Count	Rule	Disposition	Type	▼ Severity
View	5	Http_Servers_Response	Unauthorized_Access_To_Url	ACCESS_VIOLATION	CRITICAL
View	12	Tcp_Blocked_Services_Violation	Tcp_Access_Violation	ACCESS_VIOLATION	HIGH
View	2	Icmp_From_Pss_Block	Icmp_Compromising_Traffic	ACCESS_VIOLATION	HIGH
View	563	Http_Servers_Response	Invalid_Url	SECURITY_ATTACK	MEDIUM
View	17	Http_Web_Servers_Block	Invalid_Url	SECURITY_ATTACK	MEDIUM
View	2	Http_Forum_Servers_Block	Invalid_Url	SECURITY_ATTACK	MEDIUM
View	6279	Tcp_Blocked_Services_Response	Probable_Scan	SECURITY_ATTACK	WARNING
View	266	Udp_Blocked_Services	Probable_Scan	SECURITY_ATTACK	WARNING
View	7	def	internal-error	ERROR	WARNING

The server responds to an attempt to access a blocked service; correctly if it resets the connection, incorrectly if it allows data through

1

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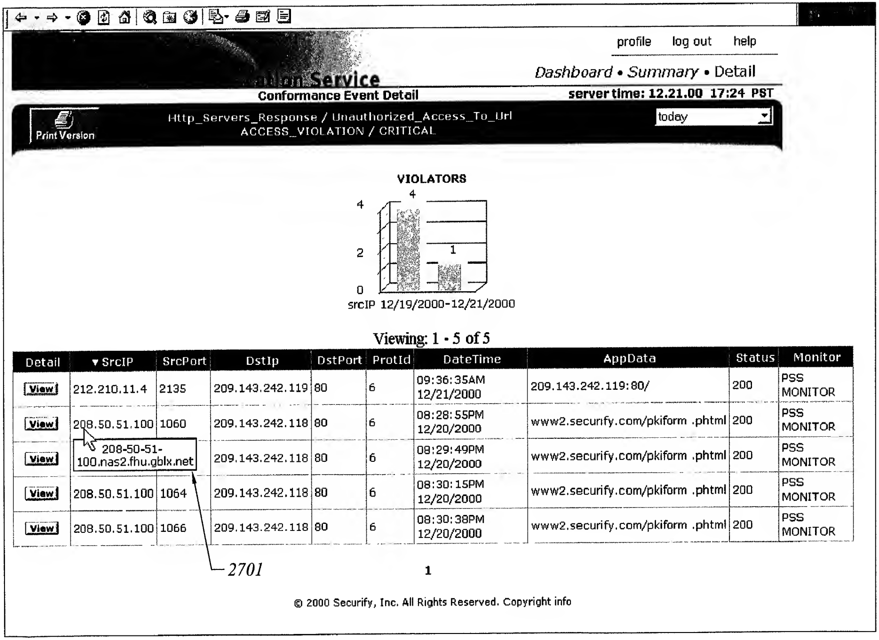
FIG. 26



profile log out help

Dashboard • Summary • Detail

Conformance Event Detail

server time: 12.21.00 17:24 PST

Http_Servers_Response / Unauthorized_Access_To_Url
ACCESS_VIOLATION / CRITICAL

VIOLATORS

srcIP 12/19/2000-12/21/2000

Viewing: 1 • 5 of 5

Detail	▾SrcIP	SrcPort	DstIp	DstPort	ProtId	DateTime	AppData	Status	Monitor
View	212.210.11.4	2135	209.143.242.119	80	6	09:36:35AM 12/21/2000	209.143.242.119:80/	200	PSS MONITOR
View	208.50.51.100	1060	209.143.242.118	80	6	08:28:55PM 12/20/2000	www2.securify.com/pkiform .phtml	200	PSS MONITOR
View	208-50-51-100.nas2.fhu.gblx.net		209.143.242.118	80	6	08:29:49PM 12/20/2000	www2.securify.com/pkiform .phtml	200	PSS MONITOR
View	208.50.51.100	1064	209.143.242.118	80	6	08:30:15PM 12/20/2000	www2.securify.com/pkiform .phtml	200	PSS MONITOR
View	208.50.51.100	1066	209.143.242.118	80	6	08:30:38PM 12/20/2000	www2.securify.com/pkiform .phtml	200	PSS MONITOR

1

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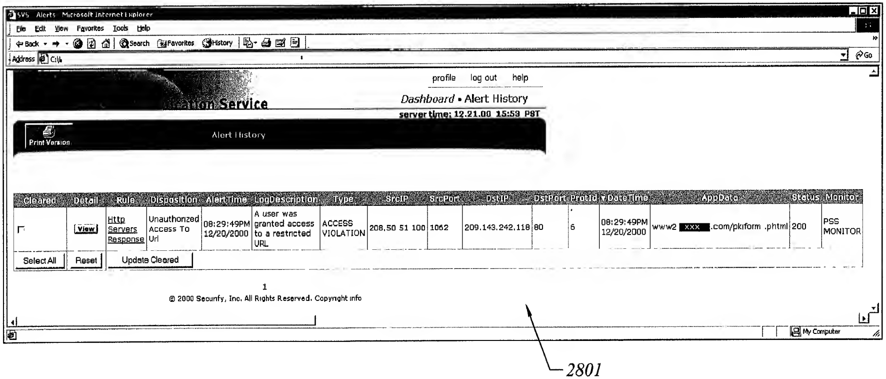
FIG. 27



SVS Alerts Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address C:\
Go
profile log out help
Print Version
My Computer
2801

...ation Service

Dashboard • Alert History

server time: 12.21.00 15:53 PST

Alert History

Cleared	Detail	Rule	Disposition	AlertTime	LogDescription	Type	SrcIP	SrcPort	DstIP	DstPort	ProtId	▾DateTime	AppData	Status	Monitor
□	View	Http Servers Response	Unauthorized Access To Url	08:29:49PM 12/20/2000	A user was granted access to a restricted URL	ACCESS VIOLATION	208.50 51 100	1062	209.143.242.118	80	6	08:29:49PM 12/20/2000	www2 XXX .com/pkiform .phtml	200	PSS MONITOR

Select All Reset Update Cleared

1

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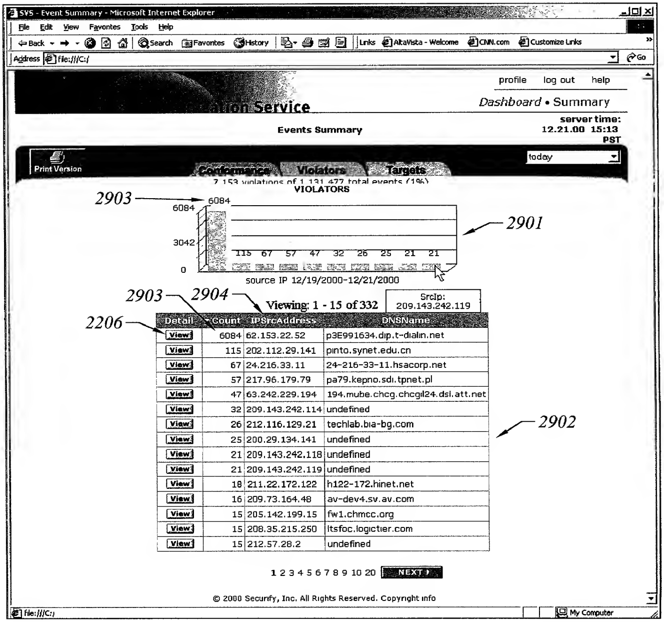
FIG. 28



SYS - Event Summary - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History Links AltaVista - Welcome CNN.com Customize Links
Address file:///C:/
Go
profile log out help
ation Service
Dashboard • Summary
Print Version
Conformance Violators Targets
today
2903
2901
2903
2904
2206
2902
VIOLATORS
6084
6084
3042
0
115 67 57 47 32 26 25 21 21
source IP 12/19/2000-12/21/2000
NEXT
file:///C:/
My Computer

Events Summary

server time:
12.21.00 15:13
PST

7,153 violations of 1,131,477 total events (1%)

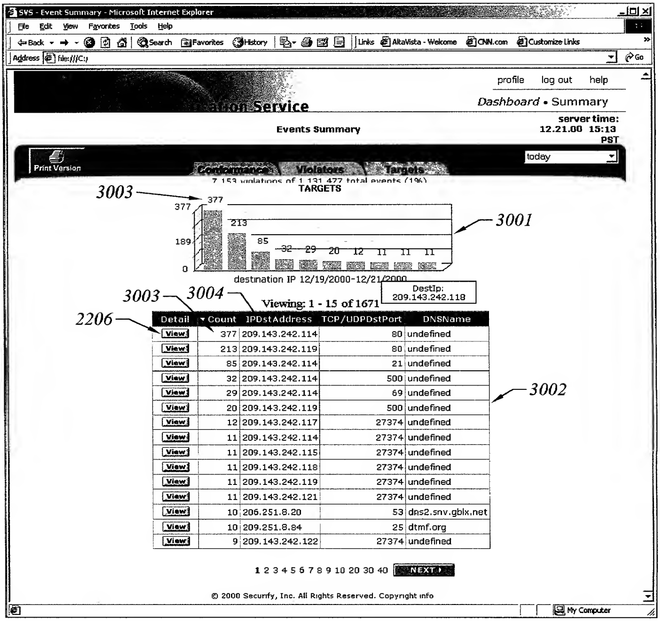
Viewing: 1 - 15 of 332

SrcIp:
209.143.242.119

Detail	Count	IPSrcAddress	DNSName
View	6084	62.153.22.52	p3E991634.dip.t-dialin.net
View	115	202.112.29.141	pinto.synet.edu.cn
View	67	24.216.33.11	24-216-33-11.hsacorp.net
View	57	217.96.179.79	pa79.kepno.sdi.tpnet.pl
View	47	63.242.229.194	194.mube.chcg.chcgil24.dsl.att.net
View	32	209.143.242.114	undefined
View	26	212.116.129.21	techlab.bia-bg.com
View	25	200.29.134.141	undefined
View	21	209.143.242.118	undefined
View	21	209.143.242.119	undefined
View	18	211.22.172.122	h122-172.hinet.net
View	16	209.73.164.48	av-dev4.sv.av.com
View	15	205.142.199.15	fw1.chmcc.org
View	15	208.35.215.250	ltsfoc.logictier.com
View	15	212.57.28.2	undefined

1 2 3 4 5 6 7 8 9 10 20

FIG. 29



Dashboard • Summary

server time:
12.21.00 15:13
PST

Events Summary

7 153 violations of 1 131 477 total events (1%)

TARGETS

destination IP 12/19/2000-12/21/2000

DestIp:
209.143.242.118

Viewing: 1 - 15 of 1671

Detail	▾ Count	IPDstAddress	TCP/UDPDstPort	DNSName
View	377	209.143.242.114	80	undefined
View	213	209.143.242.119	80	undefined
View	85	209.143.242.114	21	undefined
View	32	209.143.242.114	500	undefined
View	29	209.143.242.114	69	undefined
View	20	209.143.242.119	500	undefined
View	12	209.143.242.117	27374	undefined
View	11	209.143.242.114	27374	undefined
View	11	209.143.242.115	27374	undefined
View	11	209.143.242.118	27374	undefined
View	11	209.143.242.119	27374	undefined
View	11	209.143.242.121	27374	undefined
View	10	206.251.8.20	53	dns2.snv.gblx.net
View	10	209.251.8.84	25	dtmf.org
View	9	209.143.242.122	27374	undefined

1 2 3 4 5 6 7 8 9 10 20 30 40 NEXT

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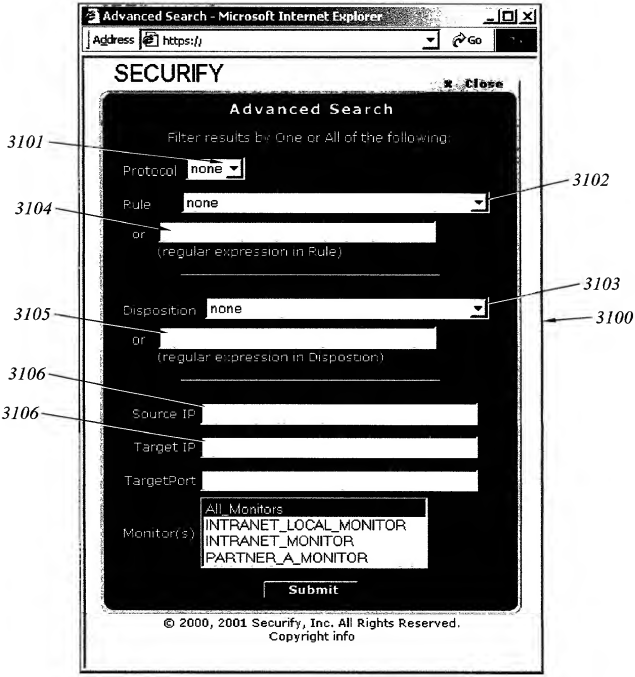
FIG. 30



Advanced Search

Filter results by One or All of the following:

Protocol: none

Rule: none

or

(regular expression in Rule)

Disposition: none

or

(regular expression in Dispostion)

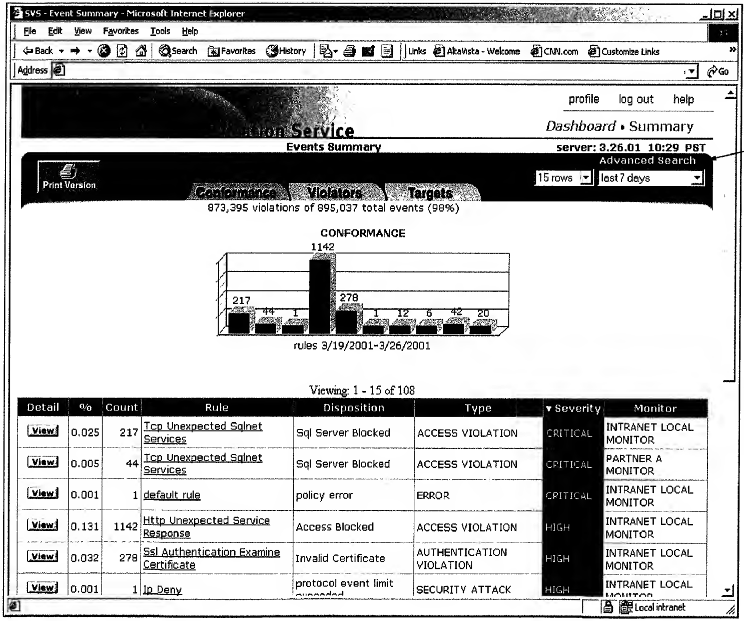
Source IP

Target IP

TargetPort

Monitor(s): All_Monitors
INTRANET_LOCAL_MONITOR
INTRANET_MONITOR
PARTNER_A_MONITOR

FIG. 31



873,395 violations of 895,037 total events (98%)

rules 3/19/2001-3/26/2001

Viewing: 1 - 15 of 108

Detail	%	Count	Rule	Disposition	Type	▼Severity	Monitor
View	0.025	217	Tcp Unexpected Sqlnet Services	Sql Server Blocked	ACCESS VIOLATION	CRITICAL	INTRANET LOCAL MONITOR
View	0.005	44	Tcp Unexpected Sqlnet Services	Sql Server Blocked	ACCESS VIOLATION	CRITICAL	PARTNER A MONITOR
View	0.001	1	default rule	policy error	ERROR	CRITICAL	INTRANET LOCAL MONITOR
View	0.131	1142	Http Unexpected Service Response	Access Blocked	ACCESS VIOLATION	HIGH	INTRANET LOCAL MONITOR
View	0.032	278	Ssl Authentication Examine Certificate	Invalid Certificate	AUTHENTICATION VIOLATION	HIGH	INTRANET LOCAL MONITOR
View	0.001	1	Ip Deny	protocol event limit succeeded	SECURITY ATTACK	HIGH	INTRANET LOCAL MONITOR

FIG. 32